**DEPARTMENT OF THE ARMY**
**OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY (CIVIL WORKS)**

**COMPLETE STATEMENT**
**OF**

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**FOR THE HEARING BEFORE THE**

**SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT**
**COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE**
**UNITED STATES HOUSE OF REPRESENTATIVES**

**ON**

**STRATEGIES TO ADDRESS CONTAMINATED SEDIMENTS**

**ROOM 2167, RAYBURN HOUSE OFFICE BUILDING**
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MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE:

## INTRODUCTION

I am Dominic Izzo, Principal Deputy Assistant Secretary of the Army for Civil Works. I am pleased to appear today on behalf of the Office of the Assistant Secretary of the Army for Civil Works and the U.S. Army Corps of Engineers, to provide information on the Army's programs for regulating, evaluating and managing dredged material, and, specifically contaminated sediments. The Corps has had a navigation mission since the Survey Act of 1824. Since that time, the Corps has established a tradition of fulfilling the vital navigation needs of the Nation through the construction and maintenance of ports and waterways across the Nation. Based upon the Corps' 177 years of experience, Army believes that there is no single panacea to port and channel maintenance challenges. Rather, solutions should be based upon situationally sound engineering, after thoughtful consideration of a broad range of comprehensive and watershed-based alternatives. In my testimony I will provide information on the importance of the Corps dredging mission, future dredging needs, research and development, the regulation and testing of dredged material, and how the Corps uses dredged material beneficially for ecosystem restoration projects.

## IMPORTANCE OF THE DREDGING MISSION

The Nation's ports and waterways are vital transportation links for domestic and international trade. Foreign trade now accounts for more than 25 percent of our Nation's Gross Domestic Product and is expected to make up an even greater share of our economy in the future. Many of our Nation's waterways and harbors must be dredged periodically to remain open for trade. This maintenance work must be accomplished in ways that protect and conserve our Nation's aquatic and associated coastal and upland environmental resources that are critical for fish and wildlife species, our Nation's economy, and overall environmental health. Over the past 177 years, the Corps has become a leader in finding ways to balance the need for viable ports and waterways, while concurrently achieving environmental stewardship objectives in the face of heavy population shifts to coastal areas, the demand for navigation project improvements associated with world trade, and increasingly tight Federal, State and local budgets.

Dredging and disposal of contaminated and non-contaminated dredged material have been of public concern since the early 1970's. Based on that public concern, Congress authorized national programs of research and development to address environmental issues associated with dredging, the suitability of dredged material for an array of disposal alternatives, and dredged material management. The Corps, the U.S. Environmental Protection Agency (EPA) and others have worked hard to resolve many of the technical issues, especially those concerning contaminated sediments and have had significant successes since that time. One of the most difficult issues with which we must contend is how to curtail the release of pollutants at their source, before such pollutants can contaminate channel sediments. The Corps has adopted a weight of evidence risk-based approach to address the identification, assessment and management of contaminated sediments in our ports and waterways. Importantly, we must all continue to work together to clean up our Nation's waters.

## ANTICIPATED DREDGED MATERIAL DISPOSAL NEEDS

Maintenance and improvement of ports and navigation channels are achieved primarily through dredging. The Corps is responsible for dredging about 250 million cubic yards of material per year in coastal and inland harbors and channels. Of this total, about five percent, or about 10-15 million cubic yards, is considered by the Corps to be contaminated to the extent it requires special handling. In addition to Federal navigation dredging, the Corps authorizes the dredging of roughly 50 million cubic yards of dredged material across the Nation annually under our regulatory authorities. Many of the permitted activities are related to maintaining or improving the non-Federal elements of the commercial navigation system. While it is difficult to predict whether dredging needs over the next five to ten years will change significantly from the historic dredging rates and volumes, the Corps continues to plan for expected dredged material disposal volumes based on historic data.

The objective of the Corps navigation program is to provide for the construction and maintenance of a safe, reliable, efficient, economically justified, and environmentally sustainable navigation system within the United States. Maintaining such a navigation system and the related non-Federal facilities it supports usually requires maintenance dredging and associated disposal of sediments. Though Corps dredging and disposal activities on the Federal system are

not specifically permitted under the Army's regulatory program, the same requirements to protect the Nation's environment and our natural resources apply.

ENVIRONMENTAL COMPLIANCE

Implementation of Corps programs requires compliance with over 20 other Federal environmental protection and conservation statutes, including the Fish and Wildlife Coordination Act (F&WCA), National Environmental Policy Act (NEPA), the Endangered Species Act, the Coastal Zone Management Act (CZMA), the Marine Protection Research and Sanctuaries Act (MPRSA), Clean Water Act (CWA) and a number of historic preservation acts. In addition, implementation of dredging activities almost always requires approvals under State environmental programs and regulations administered under the CWA, CZMA, and F&WCA.

The execution of our navigation responsibilities requires that we work closely with the EPA, the U.S. Fish and Wildlife Service and various elements of the National Oceanic and Atmospheric Administration, such as the National Marine Fisheries Service. The process is designed to provide full involvement of State and local agencies and the public. Under section 404 of the CWA and section 102 of the MPRSA, depending on whether disposal is proposed for inland waters or ocean waters, respectively, EPA, in consultation with Army, establishes criteria for the disposal of dredged material which are applied to Army dredged material disposal and disposal by private interests under permit from the Corps. Under section 404 of the CWA, EPA has the authority to prohibit or restrict the use of any aquatic site for the disposal of dredged material. Further, under the MPRSA, EPA has responsibility for designating ocean disposal sites and, in conjunction with Army, is responsible for the development of site management and monitoring plans. EPA must concur on permits and authorizations for dredged material disposal issued under the MPRSA.

RESEARCH AND DEVELOPMENT

Because of the impacts of the Corps navigation program and regulatory program on the economy and the environment, the Corps has maintained a commitment to environmental research and development in support of these programs since 1973. This research provides the scientific base for the Corps and EPA's use of risk-based approaches to classify sediments according to effects of contamination and to properly select disposal alternatives and to regulate dredged material disposal in both a cost-effective and environmentally responsible manner. We view our R&D activities as a critical part of making informed decisions affecting both the regulatory and the navigation programs and will continue this strong commitment to R&D. Currently, we are in the fifth year of the congressionally authorized Dredging Operations and Environmental Research Program (DOER). Developing scientifically defensible testing and management protocols for contaminated sediments is a major research focus area for the DOER program being conducted by our Center for Contaminated Sediments at the Engineering Research and Development Center at the Waterways Experiment Station in Vicksburg, Mississippi. Emphasis is being placed on field validation and incorporation of new testing and assessment protocols (bioaccumulation assessments) into the weight of evidence risk-based decision-making process. When managing contaminated sediments, particularly where complex issues are involved, the risk assessment process provides a scientifically sound framework for

characterizing the incremental risks to humans and the environment and making decisions on how best to manage those risks.

The Corps has consolidated all information regarding dredging and dredged material management research into a single website. We continue to scour worldwide databases for dredging technology and other dredging and dredged material management information and to place that information on a searchable database. All past and current research products are included, as well as all the manuals referenced in this testimony. Our current database includes nearly 5,000 references and research reports, many of those on contaminated sediments. The DOER program also conducts research to further develop risk-based approaches in assessing and managing disposal of dredged material, such as PCB-contaminated sediments.

However, research and responsible management of contaminated sediments can only carry us so far. The navigation dredging problem and management of contaminated sediments will require improved sediment management practices in upstream locations. Agricultural runoff, combined sewer overflows and storm water runoff, coupled with the occasional lack of compliance with existing provisions of the CWA, exacerbate existing water quality problems. Contaminants found in sediments that must be dredged to maintain navigation most often come from upstream industrial sources or from agricultural runoff in the watershed. The Corps is developing a comprehensive regional sediment management program to improve our ability to proactively manage sediments. Regional sediment management recognizes the ecological relationship between individual projects, and that a proactive regional planning and engineering approach will produce significant cost savings and project benefits over the long term.

## INTERAGENCY AND EXTERNAL COORDINATION

Another key element in improved dredged material management is better interagency and external coordination. Successful dredged material management requires the cooperation of the ports, Federal and State regulatory and resource agencies, State governors, and other elected officials, as well as the support of the general public. We have several initiatives underway to build these kinds of partnerships at the national and regional level. For example, we held a series of regional meetings with ports throughout the country to build a stronger partnership and resolve issues of mutual concern.

In several cases, the Corps is participating with other Federal, State and local agencies and groups in Regional Dredging Teams and Local Planning Groups to address dredging and disposal issues and examine future disposal. These successful local coordination mechanisms must be replicated in other regions. Improved coordination is also a major focus of the National Dredging Team, which has undertaken a number of activities to improve interagency and external coordination.

REGULATING DREDGED MATERIAL

The Army regulatory program authority pertains to many activities affecting the Nation's waters. Dredging, filling, and other types of construction work in navigable waters of the U.S. are regulated under section 10 of the Rivers and Harbors Act (R&HA) of 1899. Navigable waters of the U.S. include all tidal waters, as well as all other waters previously, currently, or potentially capable of providing for transportation of interstate commerce. The Army regulatory program also includes the regulation of the discharge of dredged or fill material into waters of the U.S., including wetlands, under section 404 of the CWA. Finally, Army regulates the transportation of dredged material for the purpose of ocean disposal under section 103 of the MPRSA. While the ecological problems associated with dredged material management are challenging, we are committed to the environmentally effective management of dredged material.

The States also have a regulatory role in dredged material management. Any discharge of dredged material proposed for inland and near coastal waters and regulated by the Corps under the CWA must be certified by the appropriate State as complying with the applicable provisions of section 401 of the CWA. The coastal States also administer coastal zone management programs under the Federal CZMA. Federally regulated discharges of dredged material that may affect a coast covered under a Federally approved coastal zone management plan must also be determined by the appropriate State to be consistent, to the maximum extent practicable, with the CZM program prior to approval of the regulated activity by the Corps.

The Corps regulatory process varies depending upon the degree of impact being evaluated. Projects of a large scope require a public notice describing the project and testing results and the solicitation of comments from Federal, State and local agencies and groups and the public. The Corps may also conduct a public hearing at the request of another Federal agency, State agency, or other interested parties if the Corps believes that additional information would be useful to evaluate the proposed project. After collecting information, including any letters, meetings, and coordination with the applicant and Federal, State and local agencies, the Corps evaluates the project and renders final determinations regarding public interest and ocean dumping criteria compliance or Section 404(b)(1) guidelines compliance. Testing results are considered, in conjunction with other case-specific information, in reaching decisions with regard to managing the dredged material. This may include alternative disposal sites, e.g., upland, inland and near coastal aquatic sites and the oceans, and alternative methods, e.g., treatment of the dredged material. The Corps subsequently makes a decision to issue, issue with conditions, or deny the subject application; completes the required NEPA documentation, i.e., environmental assessment or environmental impact statement; and prepares a final statement of compliance with the section 404(b)(1) guidelines and/or the ocean dumping criteria. Monitoring is conducted as necessary.

In compliance with current permit and environmental protection regulations, the Corps must conclude that a proposed dredging and dredged material disposal project is not contrary to the public interest before a permit decision is made. Public interest factors considered with respect to dredged material contaminant-related impacts include ecological and human health factors, water quality, water supply, safety, fish and wildlife impacts, and economics, among

others. The CWA regime provides a sound and technically defensible approach for evaluating and managing highly contaminated sediments. With nearly 30 years of experience regulating and managing sediments under the CWA, the Corps believes that the CWA protocols provide a consistent, predictable process that applicants and Principle Responsible Parties desire when managing highly contaminated sediment clean up projects. The CWA regime also contains all the elements for performing risk-based assessments.

## TESTING AND ASSESSING DREDGED MATERIAL

To comply with the ocean dumping criteria, the Corps must determine that disposal of dredged material will not unreasonably degrade or endanger human health, welfare, amenities, or the marine environment, ecological systems or economic potentialities. To reach a determination under the MPRSA, the Corps follows guidance provided in a manual entitled "Evaluation of Dredged Material Proposed for Ocean Disposal - Testing Manual", commonly known as the "Green Book." The Green Book uses biological testing to provide weight of evidence effects-based conclusions, i.e., the potential for contaminant-related water column, benthic toxicity and benthic bioaccumulation-related impacts, within a tiered framework. Under a tiered framework, more sophisticated testing is used only as necessary for decision making. Several regional Green Book implementation manuals, which are an important component of this process, have been completed.

To comply with the CWA section 404(b)(1) guidelines, the Corps must determine that disposal of dredged material at the proposed site is the least environmentally damaging, practicable alternative; complies with State and Federally established water quality and toxics standards; will not result in significant degradation of the aquatic environment; and will be conducted and conditioned so as to minimize potential adverse impacts to the aquatic ecosystem. The section 404(b)(1) guidelines also require chemical and biological testing when there is reason to believe that material proposed for disposal in inland and near coastal waters is contaminated. In recognition of the need for greater consistency in testing procedures between inland and near coastal waters and the oceans, as well as between regions of the country, the Corps and EPA have prepared a manual entitled "Evaluation of Dredged Material For Discharge in Inland and Near Coastal Waters - Testing Manual", or "Inland Testing Manual" (ITM). This manual is patterned after the Green Book. The Corps and EPA published the ITM as a final guidance document in February 1998. The Corps is currently in the process of developing an Upland Testing Manual as a companion guidance document when dredged material management decisions involve consideration of the upland disposal alternative. That document is scheduled for release within the next few months.

The Corps and EPA issued a comprehensive technical management strategy, entitled, "Evaluating Environmental Effects of Dredged Material Management Alternatives - A Technical Framework," designed to identify environmentally acceptable disposal options and describe all potential contaminant pathways for all dredged sediments. This document serves as the overall umbrella guidance in managing dredged material from navigation projects. Our approach is to develop and apply a consistent evaluation framework, not only for sediment contamination testing, but also for providing effective controls of contaminated sediments for the full array of management options**,** to include site monitoring. All components of the testing manuals and the

evaluative framework represent the effects and exposure pathways for making a comparative risk assessment among management alternatives.

## BENEFICIAL USE OF DREDGED MATERIAL

The Corps is committed to the concept of beneficial uses of dredged material within its navigation and dredging program. A 1989 Office of Technology Assessment study reported that about 95 percent of the sediments dredged from coastal waters each year (about 150 million cubic yards for both Federal projects and permitted activities) are considered suitable for a wide range of beneficial use options. Traditional beneficial uses would include wetland and upland habitat development, beach nourishment, shoreline protection, land creation, island restoration, and construction aggregate and industrial use. More recent efforts have included the use of clean dredged material from a nearby Federal or permitted project to cap contaminated material outside the navigation channel. Currently, we are investigating under our DOER program a number of technologies that combine dredged material in upland sites with different types of waste and organic matter to form a manufactured soil. That research is promising and may improve the prospects of creating capacity in upland disposal areas by cycling dredged material out for beneficial uses.

The Corps authority for beneficial uses of dredged material was originally limited to projects incidental to maintenance or construction and where there was no increase in cost to the Federal project or where the local sponsor would pay the increment of increased cost. Section 145 of the Water Resources Development Act (WRDA) of 1976, as amended, authorized beneficial placement of dredged material on beaches. Section 1135 of the 1986 WRDA, as amended, provides further opportunities for beneficial uses of dredged material. Finally, section 204 of the WRDA of 1992 authorizes the Corps to participate in projects to use dredged material for aquatic habitat and wetland creation, restoration and protection. With this new authority we are able to establish partnerships with States, port authorities and other local governments, along with other Federal agencies, to use dredged material to protect, restore and create wetlands and other aquatic habitat.

## TECHNOLOGY DEVELOPMENT

The Corps has developed a technological base over the last three decades that emphasizes the identification, assessment, and management of contaminated sediments in terms of the components of the risk assessment. Because of its technology base and its active participation in the London Convention and other international efforts, the Corps is recognized as a world expert in dealing with contaminated sediments.

Technological research in the 1970's was broad in scope, including the basic understanding of ecological impacts associated with management of clean and contaminated dredged material; in the 1980's it focused on contaminated sediments. This work was done jointly with EPA to enhance the identification, assessment and management of contaminated materials. Research in the 1990's and beyond emphasizes assessments of long-term risks from bioaccumulation, sublethal toxicity, and genotoxic effects. It continues efforts from the 1980's to enhance capability for cleanup and remediation of hot spots, risk analysis, endangerment

assessments, and treatment technology. The Corps, in support of EPA's Assessment and Remediation of Contaminated Sediments program on the Great Lakes, has considered or researched a number of treatment technologies. We do not view any single dredged material treatment technology or management alternative as a panacea. Rather, each dredging project and management option must be considered on a project specific basis applying environmental protection, engineering practicability, and economic criteria. Additionally, a 1997 study published by the National Academy of Sciences (NAS), “Contaminated Sediments in Ports and Waterways: Clean-up Strategies and Technologies,” concluded that some in-situ controls can be an effective means of managing contaminated sediments. It also concluded that risk-based decision-making could play a more active role in dredged material management. The NAS also issued risk-based recommendations in the March 2001 report entitled "A Risk-Management Strategy for PCB-Contaminated Sediments". The Corps DOER program initiated a Risk Assessment Focus Area five years ago as an integral part of our on-going research. Several research products documenting the development and application of risk assessment tools in decision-making have been placed on our website and are scheduled for publication in the near future.

ENVIRONMENTAL DREDGING

Section 312 of the Water Resources Development Act of 1990, as amended by the Water Resources Development Acts of 1996 and 1999, authorizes the Secretary, acting through the Corps, to remove contaminated sediments outside the boundaries of and adjacent to Federal navigation projects. Under Section 312(a), contaminated sediments may be removed during the maintenance dredging of adjacent Federal channels in situations where it can be demonstrated that this contaminated material contributes to contamination within the Federal channel.

Under Section 312(b), the Corps also may remove contaminated sediments outside the boundaries of and adjacent to Federal navigation projects for the purpose of environmental enhancement and water quality improvement. The removal must be requested by a non-Federal sponsor willing to pay 50 percent of the cost of removal and 100 percent of the cost of disposal. While the Corps experience is limited under the Section 312 environmental dredging authority, study processes and procedures are in place to ensure that the environmental benefits, costs, and risks are considered fully as site-specific project alternatives are formulated and evaluated.

## CONCLUSION

In conclusion, the Corps supports the use of risk-based decision making for complex contaminated sediments management issues. Advances made in recent years in our ability to detect very low concentrations of numerous chemicals in water, sediments, and tissues of aquatic organisms has dramatically increased the challenge of assessing the cumulative impacts of these and other environmental stressors. The risk-based tools we are developing within our research programs will increase our ability to quantify the potential for unacceptable impacts and reduce the uncertainties associated with managing the risks posed by contaminated sediments. The regulatory process, testing manuals and evaluation framework used by the Corps for navigation

dredged material and contaminated sediment management is in full agreement with existing legislation, international agreements, and the National Academy of Sciences recommended protocols for PCB contaminated sediment assessment and management.

The Corps will continue as a leader in risk-based contaminated sediment technology development and application at our navigation projects and in support of EPA and NOAA programs for contaminated sediment remediation.

The Corps will continue to execute its responsibilities to protect the environment, in reaching decisions on our port, harbor and navigation system. Effectively balancing the demands on our water resources will guide us toward making environmentally sound decisions that support the national economy and social well being.

Mr. Chairman, this concludes my statement. I would be happy to answer any questions you or the other Subcommittee members may have.